



# Future Visions: A Sustainable and Healthy Local Food Production System

By James J. Garrett

## On the Ground

- A collaborative effort to create an innovative food production system is underway on the Standing Rock Lakota Reservation.
- Three land-grant universities and colleges, along with United States Department of Agriculture Agricultural Research Service, are conducting research as a foundation to begin planning for on-the-ranch production of healthier meat.
- This collaborative project uses the Lakota philosophy of natural resource management and in this paper I urge more.
- I recommend additional research to develop investigations of relationships between cattle and the native food and medicine plants that also reside within the pasture.

**Keywords:** meat production, Lakota resource management, land-grant collaboration.

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Indigenous people on the Standing Rock Lakota Reservation in the mixed-grass areas of the Northern Great Plains are calling for the development of new innovative food production systems. The owners of the allotted and tribal lands want sustainable methods of producing food researched, developed, and introduced in their community. They also want their land to be used to produce more diverse types of food on the same parcel of land as the current monocultural methods.

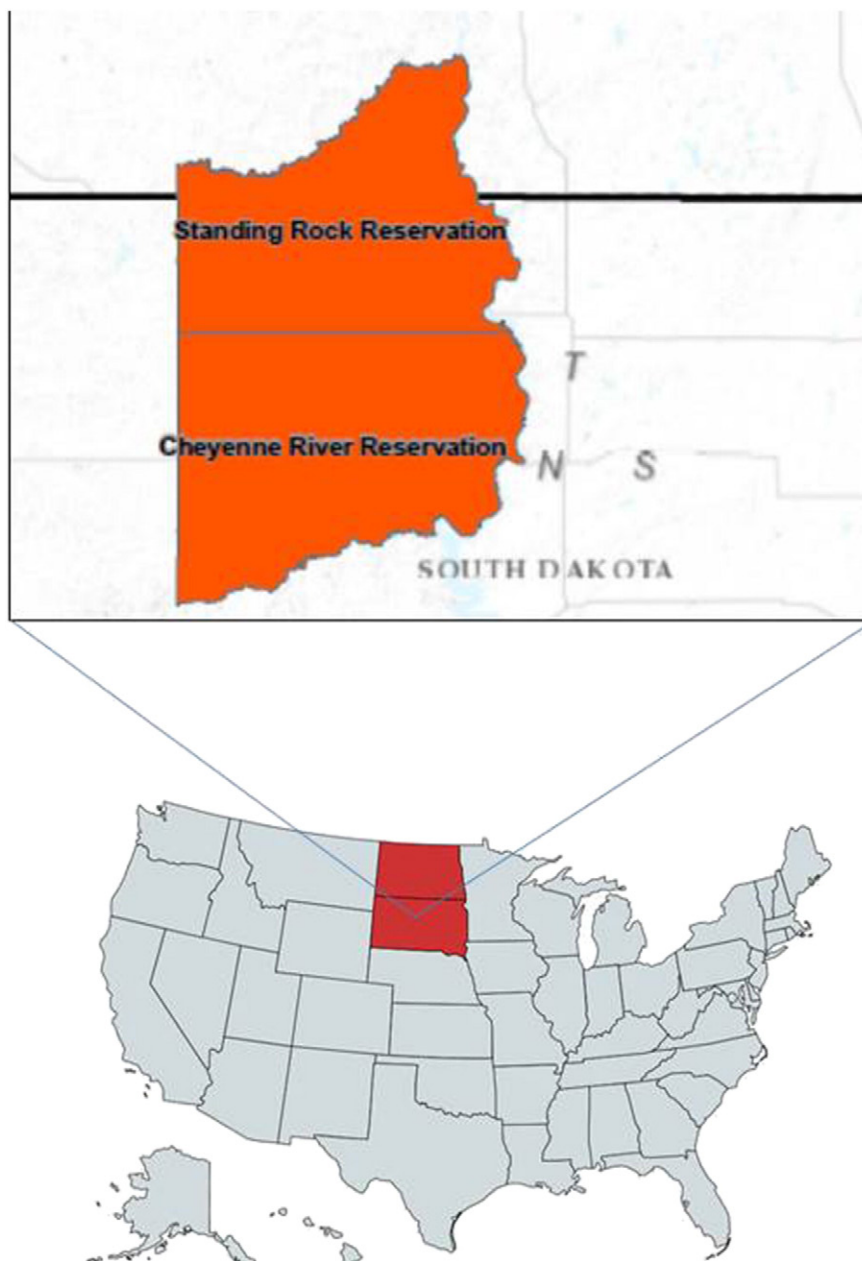
Throughout human history, old world nations have had an obsession with claiming other people's land as their own. The European nations made the new world into their colonies. As we know, this scenario played out with the European nations exploiting their colonies and extracting every conceivable natural resource available and sending them to the mother country.

Noted economist E.F. Schumacher's classic monograph *Small is Beautiful: Economics as if People Mattered*<sup>1</sup> chronicles how many countries will internally colonize sections or regions of their country as well. According to Schumacher, raw materials are mined or garnered in one region and sent to another where the materials are enhanced and enriched, developed into finished products, and returned to the original region at a substantially higher cost to the consumer. Often, the finished product provided is not the original material at all and consists of one that is of inferior quality.

The scenario described by Schumacher occurs in a cyclical fashion on cattle ranches throughout the Great Plains annually. In this paper, however, I focus on two Lakota Indian reservations in south-central North Dakota and north-central South Dakota, the Standing Rock Reservation and the Cheyenne River Nations (Fig. 1). This geographical area arguably produces some of the best grass in the world. Western Dakota grasslands, or what is left of them, produce extremely high-quality forage for local herbivores.<sup>2</sup> The grassland ecosystem of the North American continent today is extremely fractured and, according to some ecologists, is the most endangered ecosystem in North America.<sup>3,4</sup>

Situated in this geopolitical area are the Standing Rock and the Cheyenne River Lakota Indian reservations, which together encompass approximately 2,225,774 ha (5.5 million acres). The land ownership on these reservations often is fragmented. For example, although the Standing Rock Reservation covers more than 2.3 million acres, 63% is in state, federal, or non-Native American ownership.<sup>5</sup> The remaining land is in allotted lands (65%) or tribal lands (35%).<sup>5</sup> This fragmentation in land ownership can create difficulties because of the need to have a minimum viable economic unit.

These two reservations also possess some of the most intact native grasslands in the Great Plains, although they are being slowly invaded by exotic species. Each year, the region's calf crop is bought up by feedlots located in other areas of the country, fed high-protein diets that consist of grains, finished to butcher weights, butchered and packaged by huge conglomerates, and then returned to the Dakotas, as well as other regions, as consumable meat products. This product is



**Figure 1.** Location of Standing Rock and Cheyenne River Reservations in North and South Dakota. Created by J. Garrett. Map created by J. Carter.

then marketed throughout the country at a high cost to the consumer because of the large number of people involved in the operation from start to finish. The original producer of this product traditionally receives only a small share of the final cost of production. So, a situation occurs where the producers receive unfairly small prices for their raw product (in this case, calves); however, by the time all the middle men such as the feedlots, butchers, etc., receive their cuts, the finished product is rather expensive to the consumer. This is true although the finished product may have been raised within just a few miles of the consumer. This situation occurs despite research that illustrates that grain-fed meat is not as healthy for the human body as are grass-fed meats.<sup>6</sup>

A collaboration was launched between Sitting Bull College (SBC), United States Department of Agriculture (USDA)-Agricultural Research Service Northern Great Plains Research Laboratory, North Dakota State University, and South Dakota State University to examine concerns about natural resource degradation, unemployment, and diet quality on the Standing Rock Reservation. For a description of how the project was initiated, see Hendrickson et al. (*this issue*). Before beginning this project, the collaborating groups polled community residents to see if the notion of sustainable growth of food products was something they wanted and desired. Focus group sessions were held in the various districts that makeup the Standing Rock Reservation. The focus group

participants unanimously asked that food production be kinder and gentler on the grasslands. Participants voiced concerns about overgrazing and the desire to have goals and policies in place to protect the land and resources. They believed that methods might be able to be developed that would protect the integrity of the grasslands that make up their home. They expressed a desire for a healthier meat to be produced because of the modern diseases and illnesses that are becoming more commonplace among native people. They asked whether a system can be developed where food can be produced locally by local people, processed locally by local people, and then offered for sale to local residents within the reservation community.

After the initial grant in 2009 provided baseline natural resource and community interest evaluations, a 5-year grant (Renewal on the Standing Rock Sioux Reservation: Land, cattle, beef and people) was secured in 2011 from the USDA Agricultural and Food Research Initiative Program. Collaborators on this grant included the same group as previously mentioned. SBC is a nonprofit fully accredited educational institution chartered by the Standing Rock Sioux Tribe and is located in Ft. Yates, North Dakota. All three universities and colleges involved in this project enjoy the status of being "land-grant colleges/universities" under the authority of the USDA by enactment of the Morrill-Lever Act of 1862. This legislation was subsequently amended in 1892, and again in 1994, to include historic black colleges and tribal colleges, respectively. The purpose of this congressional "land-grant" designation is to enable institutions of higher learning to teach formal agriculture-related educational coursework, to conduct community outreach otherwise known as "extension programs," and to conduct agricultural-based research. The USDA makes available grant funding to land-grant institutions to address these three purposes.

The intent of the grant is to research the feasibility of creating a healthier food production system that produces locally raised meat that is a healthy food product. This product is to be produced, finished, butchered, packaged, sold, and consumed locally without ever leaving the reservation community.

Tribal people sustained themselves for centuries and millennia on intensively grazing bison (*Bison bison*), and other species, associated with grasslands.<sup>2,7,8</sup> However, there are some who argue that these grasslands were never sustainable even when primarily grazed by bison.<sup>9</sup>

The initial phase of the Renewal on Standing Rock grant is to gather more baseline data on ecological interactions that occur on the prairie grasslands. This is specific to the Standing Rock Lakota/Dakota Reservation lands and the potential effects of beef cattle on native inhabitants of the grassland. Do prairie dogs affect cattle weights? Do cattle trample grassland-dependent bird species nesting sites? What types of wildlife reside on these grasslands that humans may rarely witness their presence? What is the proper balance of populations that ensures all inhabitants of the ecosystem continue to live good lives?

The research is meant to develop methods of beef production that is sustainable over time. The hope is that

sustainable methodology will allow the human community to produce high protein meat that does not dislodge other native inhabitants off of the grasslands. There are some however who question whether some native species impact cattle weight by consuming valuable grass resources that should be reserved exclusively for livestock.<sup>10,11</sup>

There also is some thought that extensive cattle grazing on fragile grasslands may affect some wild species populations such as the rather large and important population of grassland-dependent songbirds that migrate between winter grounds in the south and summer grounds in the northern regions.<sup>2</sup> There is evidence that grassland-dependent bird species populations are in decline and have been since the 1960s.<sup>4</sup> Although there is some disagreement between the tribal government and its community members about exactly which species has more right to use the grasses, there are many Native American land owners who recognize that a compromise needs to be achieved. They recognize that the Black-tailed prairie dog (*Cynomys ludovicianus*; Fig. 2) has resided on the prairie grasslands for a distinctively long time and should not be exterminated to save the grass for livestock.<sup>2</sup> They are resolute in saving a place on the grasslands for the prairie dog albeit it in much smaller and more balanced population numbers. The prairie dog has been recognized as a key species in the grassland ecosystem.<sup>4,12</sup> This ecological balance is something that remains elusive because of the changes throughout the grassland ecosystem in which only in-depth research may be able to resolve. The current research collaboration has provided information on the interactions between prairie dogs, cattle grazing, and ecological sites (see Hendrickson *et al.* this issue; Field *et al.* this issue) that can be used to develop grazing systems that promote this balance.

The answers to these and other research questions may determine whether meat can be produced on the tribe's grasslands using sustainable methods. It is felt among the collaborating groups that this research may end up stretching into a multiyear grant and it may very well extend into the future for another 10 to 15 years. The grant will include research on conducting high-protein forage-based feeds that mimic grass-fed beef. The purpose is to create a herd of brood cows whose offspring will remain on the ranch from birth until their death at slaughter. It is hoped that a tribally owned and operated slaughter unit will be constructed that will employ a local workforce and the finished product will be both sold and consumed locally. Perhaps there may be some extra meat that may be sold as a branded product.

## Recommended Direction for Further Research

The faculty of SBC is recommending to their collaborators to begin introducing more sustainable thinking into the research equation. There is currently a formidable amount of research available that documents the indigenous perspective of both living sustainably within the natural land system and their unique management strategies.<sup>2</sup> Faculty members are beginning to look at issues, such as the effect of cattle grazing



**Figure 2.** Black-tailed prairie dog (*Cynomys ludovicianus*) on research site in South Dakota. Photo by D. Toledo.

on plant resources that are used as traditional foods or medicines. There is recent evidence that saliva from certain herbivores, such as the native bison, may stimulate growth in certain plant species.<sup>13</sup> There is research proving that indigenous people managed natural resources through their spiritual ceremonies to ensure species productivity.<sup>14</sup> There is also research that documents that efficient indigenous management of natural resources has been happening for a far greater period of time than was originally thought.<sup>15</sup>

The Lakota and Dakota who reside on Standing Rock and Cheyenne River Reservations have a traditional belief where they are related to every living thing on the earth. In fact, there are a myriad of indigenous cultures throughout the world that have a very similar belief. The Lakota will pray by issuing the words *Mitakuye oyasin*, which means they pray for all their relatives. This is a prayer for *all* their relatives, not just their human relatives. If one understands and elaborates on this as a practical philosophy regarding where the Lakota fit into the world, along with the other living beings, it translates into a rather unique outlook on ecology. The field of ecology is not unique to Western academics at all; in fact, the indigenous people in the Americas have been practicing ecological management for hundreds of years and much of it predates the arrival of the first Europeans.<sup>14,15</sup> It is no wonder then that the natural resources in the Americas were very well managed when the Europeans showed up. Contrary to the common perception that the Europeans arrived to find a “wilderness,” they arrived to find a garden and could not see it. Luther Standing Bear states that when the very animals of the forest and prairie began fleeing from the approach of the Europeans, then that is when the “Wild West” began.<sup>16</sup>

The term *kincentric ecology* describes the type of ecology practiced by native peoples. If one breaks this term into its base words, it says “kin-centered,” meaning relative-centered ecology. In this context, “kin” means all things are my kin or relatives: You are my kin, the buffalo grass (*Buchloe dactiloides*) is my kin, the grizzly bear (*Ursus arctos horribilis*) is my kin, and so on. This means they practice a type of ecology in which other living things are considered before an environmental decision is made. So, if one herbivore is grazing the grasslands,

what is its relationship to many of the plant species that provide food and medicines for the other species? Is one herbivore more important than all others? This philosophy is exactly what many of the local community members meant when they were surveyed to find out what exactly could be provided to assist them in the task of living better and more sustainably.

In this context, the people on Standing Rock Reservation want to begin treating their natural resources with the respect that they deserve and not to use them strictly as commodities. By treating them as our relatives, maybe we would not have an ecosystem that is so badly out of balance.

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